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RESEARCH PAPER

Web3-enabled Harbergeorgism:

A Policy Mechanism for Charter Cities

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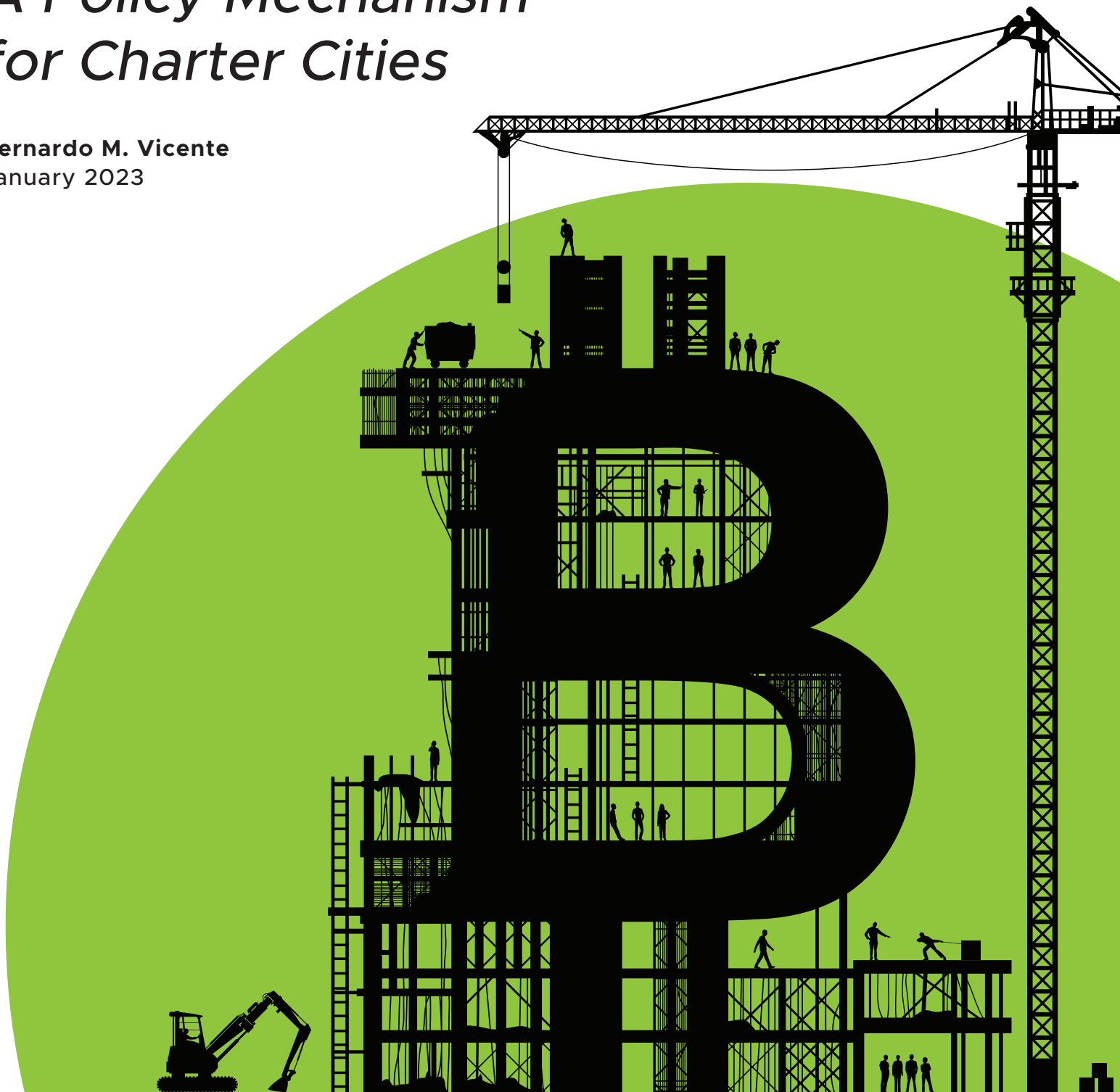
January 2023



CHARTER CITIES INSTITUTE

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- Creating legal, regulatory, and planning frameworks;
- Advising and convening key stakeholders including governments, new city developers, and multilateral institutions;
- Influencing the global agenda through research, engagement, and partnerships.

ABOUT THE AUTHOR

Bernardo Vicente is a Senior Data Analyst and Web3 Researcher. His primary work and research interests are in the finance and crypto sectors, with the goal of furthering our understanding of how technology, economics, and philosophy can advance new frontiers for human flourishing and the necessary steps to do so. He is a native of Portugal and is based in Lisbon. Bernardo can be contacted at bernardov.vicente@gmail.com.

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1 INTRODUCTION

Charter cities, and special jurisdictions more broadly, can boost economic growth, prompt institutional reform, and allow for diverse policy experimentation.[1]

However, how to conceptualize the optimal economic model to guide the development of a charter city or special jurisdiction remains unclear. Web3-enabled Harbergeorgism is one such model that is well-suited to the charter city context.

Harbergeorgism proposes a synthesis of two incentive mechanisms governing the usage of public property in the public interest: Harberger taxation and land value taxation (also known as Georgism). Harbergeorgism provides an innovative yet practical way to organize property rights, land usage, and revenue generation in a charter city. Under Harberger taxation, property owners self-assess the value of their own assets and pay a tax on that value per year; at any point in time, anyone can buy an asset from the owner at that self-assessed price, forcing a sale. Under Georgism, taxes are levied on the unimproved value of land, with other forms of taxation typically reduced or eliminated entirely. Taken together, these incentive mechanisms ensure that both property and land are utilized in maximally efficient ways, eliminating disincentives for and distortions against productive uses of capital and land.

This paper proposes that emergent Web3 technologies such as blockchain and tokenized economies can play a vital role in the practical implementation of Harbergeorgism and that special jurisdictions, including charter cities, offer a unique institutional framework under which Web3-enabled Harbergeorgism could successfully be demonstrated.

2 INTRODUCTION TO HARBERGER TAXATION AND GEORGISM

This section details the theories serving as the foundation for this paper, respectively developed by American economists Arnold Harberger and Henry George.

2.1 HARBERGER TAXATION

Harbergerism, in which anyone can force the sale of an asset at the owner's self-assessed price, solves a misallocation problem that can arise when a property owner holds out for a (sometimes monopolistic) price interested buyers may not be willing to pay, regardless of how productive (or not) the asset currently is. This can lead to a delayed or even failed transaction, even when the buyer could use the property more productively than the owner does. Such instances can cause socially suboptimal outcomes wherein property—which could be utilized to significant public benefit, setting aside potential private gains—is not reallocated to a more productive user. However, under Harberger taxation, property owners that self-assess a high value for their property but choose not to use it productively are forced to bear a tax on that value without the compensatory effect of the full economic gains that could be derived from more productive use.

Although this system of self-assessment and forced sales suggests a degree of churn in property ownership to which most people would not be accustomed, the emergence of the sharing economy may suggest otherwise. The growth of the sharing economy has made more people accustomed to temporary possession of property rather than ownership and to the simultaneous consumption and selling of (and thus setting a price on) the same asset. Most people *already* take the risk of forced sales without realizing it. This is what happens when car or house payments can no longer be made, as well as in the case of eviction from a rental property (i.e., the renter no longer exercises the exclusive right to inhabit the property). Similarly, self-assessment of valuations under difficult or uncertain circumstances (as with personally valuable but non-marketable property) is already commonplace in the form of purchasing insurance.

2.2 GEORGISM

Land value taxation, or Georgism, proposes (in its most pure form) a single tax on the unimproved value of land as a replacement for most or all taxes that disincentivize productive land use. Traditional property taxes are assessed on the value of buildings constructed on land, which disincentivizes construction and maintenance of buildings because each of these will lead to a higher tax bill. Under traditional property taxation, the owner of an empty lot in the middle of a central business district will pay little or no property taxes on that lot despite its clear *potential* value.[4] Under a land value tax, the owner of that same lot would face a large tax bill or, framed alternatively, a large incentive to use that lot productively. Where property taxation has been replaced with land value taxation, it has been followed by a surge in new construction and a revitalization of the local economy.[5]

Notable examples of successfully implemented land value taxes can be seen in Singapore, Denmark, Australia, and Norway—as well as in some American cities, such as Detroit.

Various alternatives for what to do with the revenue generated from a land value tax have been proposed. Economist Joseph Stiglitz showed that, under certain theoretical conditions, a land value tax could provide sufficient public revenue as to eliminate all other forms of taxation. Other proposals include the redistribution of surplus revenues beyond what is necessary for public expenditure back to the public as a type of universal basic income, referred to by George as a "citizen's dividend."

3 OPERATIONALIZING HARBERGER TAXATION AND GEORGISM

3.1 FRAMEWORK FOR HARBERGER TAXATION

One suggestion from *Radical Markets* authors Eric Posner and Glen Weyl is to benchmark the Harberger tax relative to the turnover rate (chance per year that a specific asset gets bought out) to help reach a sensible calculation formula for the former.

Posner and Weyl claim that a tax set between zero and the turnover rate of property optimizes for both allocative and investment efficiencies of the asset in question. If the tax is equal to the turnover rate, the owner is incentivized to value his asset honestly, and thus optimal allocative efficiency is achieved. However, a tax set at this level necessarily dampens investment efficiency. Investment efficiency can be improved by lowering the tax slightly below the turnover rate, which trades off a small amount of allocative efficiency for larger returns. This is because the only transactions that would be prevented at such a tax rate would be the those in which the potential new owner values the property only slightly more than the current owner. However, the most efficiency-enhancing transactions, in which the buyer (or winning bidder of an auction) values the asset by significantly more than the current owner, would still occur.

In terms of revenue generation, Weyl and Posner suggest that a yearly tax rate of 7 percent of the assessed property value would be near-optimal, potentially raising roughly 20 percent of a country's national income. They further suggest that a portion of this considerable revenue stream could partially be distributed to the public and perpetually fund public goods, services, and infrastructure.

3.2 BENEFITS AND UNCERTAINTIES OF HARBERGER TAXATION

Harberger taxation makes it costly to own a large number of assets and would reduce the returns to speculation. It establishes a "meritocratic" system of asset ownership—essentially an improved form of wealth taxation. Harberger taxation also represents an improvement over the current structure of property rights by eliminating information asymmetries, in which owners have the incentive to inflate the true value of their property, potentially in misleading ways, in an attempt to convince potential buyers to make larger offers.

A disadvantage of Harberger taxation is that it exposes property owners to significant uncertainty due to continual risk that someone suddenly forces a sale of their property, but this is not an entirely unknown type of risk, as discussed earlier. However, there are interesting ideas to try to resolve or smoothen some of the uncertainties generated by this mechanism, such as:

- A mandatory surrender period during which the owner could remain in possession of the asset after the buyer has purchased it.

- Payment of a percentage of the sale price to the asset owner before ownership is transferred to the purchaser.
- Permitting asset owners to bundle and unbundle their assets into clusters. This last proposed remedy is of particular importance to this paper.

3.3 FRAMEWORK FOR GEORGISM

Under a Georgist system, it becomes ever more costly to hold idle land without improving it. With a land value tax in place, the turnover rate of land decreases when usage intensity increases, as unimproved land is cheaper than improved land. This tax incentivizes property owners to increase the land's productivity—and, indeed, it correlates with high levels of allocative and investment efficiencies.

However, two commonly identified deficiencies of a Georgist system include the potential neglect of natural resources and the complicated parsing between land and property values. First, regarding natural resources, if all the value of land is taxed away, the owner of a natural resource (such as an oil reserve, water source, or mine) would be incentivized to extract as much of it from the site as quickly as possible, leading to unsustainable waste and degradation. Second, the distinction between naturally occurring land (which is taxed) and everything built on top of it (which is not taxed) is arguably fuzzy and artificial. The highly stationary nature of industry and infrastructure almost makes these assets an inherent part of the land on which they are built. Their value inevitably contributes to that of the land and inescapably ripples through adjacent economies, making it difficult to distinguish between the value arising from the land itself and the value of the structures built on top of it.

To help solve the natural resource problem, a unique Harberger tax could be implemented at such sites. Buying or leasing resource production sites at self-assessed prices would ensure that resource extraction is responsive to market demand. For example, an owner who floods the market with their resource and lowers its price would have to lower their self-assessed asset value in response.

A specialized form of a land tax can be established to help distinguish land from improvement. One approach, inspired by Vitalik Buterin, is to levy a tax based on the *average* of property values across a sufficiently large area, which could be called a Property Value Averaging Tax (PVAT). Under this version of a land value tax, improving a single piece of land does not perversely increase the taxes that the owner has to pay, without having to find a way to distinguish land from improvements in an absolute sense. The tax would be applied on a medium-to-large area to even out the tax disparity of nearby places where there are both high-value and low-value land uses. This imposes a slight penalty on efficient landowners and offers a slight subsidy to inefficient landowners but greatly simplifies the process of assessing land value at scale.

4 WEB3 AND HARBERGEORGISM

This section explores several examples of how Web3 technologies could assist in the implementation of a Harbergeorgist program.

Properly estimating asset valuations, asset turnover rates, and Harberger tax rates could prove difficult. However, artificial intelligence (AI) models could be developed to assist in these calculations. Once there are a certain number of transactions recorded on a database or blockchain ledger, a machine learning model could be trained to more accurately estimate the best values for assets across asset categories—then be suggested to asset owners during the self-assessment process or to buyers considering a purchase.

Regarding land value taxation, tokenization can help facilitate implementation. Under a PVAT, each tokenized parcel of land comprising a certain number of square feet or meters could correspond to a unitary value of a city coin, and each token would be equivalent to the average property value of that jurisdiction divided by the number of parcels minted.

This new Web3 technology introduces an entirely new paradigm of social organization. It opens up a new world of "tokenomics," market transparency, and property ownership. Emerging ideas include issuing economic tokens for in-city gating and benefits (e.g., discounts on parking, restaurants, and hotels) to foster local economic alignment with citizens and non-citizens. The city could mint two kinds of tokens: one that would act as the Georgist medium of exchange (such as the one above, in which its underlying value comes from averaging property values) and a transactional token that would be used in day-to-day commercial transactions, including Harberger-type auctions and purchases.

The first kind of token could be staked into a city's protocol, while earning interest and/or rewards, and could be potentially calculated by the city's rate of economic growth. Just as someone can stake cryptocurrencies onto a specific blockchain network to contribute to it and earn rewards, a city coin could do the same for its respective city, benefiting the people who value its usage the most.

"Weirder" and more futuristic token-based governance tools include Soulbound tokens (SBTs), a category of non-fungible tokens (NFTs). While NFTs can be used to represent property rights, SBTs can be used to subdivide them more precisely between the rights to use, consume, or profit from assets whenever someone wants to grant exclusive rights (either temporary or permanent) to another person, such as among members of the same community. As it greatly concerns asset ownership, this special token can be of assistance to the property owners' security and privacy: two important factors that are usually found lacking in any new and complex venture.

The tokenomics system outlined above would establish various positive incentives and benefits for users, as described by Buterin (paraphrased below):

- Create an **incentive to hold the coin**, sustaining its value.
- Create an **incentive specifically for residents to hold the coin**, as opposed to otherwise-unaligned faraway investors. Furthermore, the incentive's usefulness has a per-person cap, so it encourages widely distributed holdings.
- Create **economic alignment**; for example, when a city becomes more attractive, the more people want to live/work/shop/visit there and coins have more value. **Unlike home ownership, this creates alignment across an entire city**, not merely a specific location within it.
- Encourage **sustainable use of resources**, such as in the case of parking. A tokenized payment system for parking would reduce usage of parking spots (though people without coins who really need parking could still pay), supporting many local governments' desires to make roads more bike- and pedestrian-friendly. Alternatively, restaurants could be allowed to lock up coins through the same mechanism and claim parking spaces to use for outdoor seating.

This system would also create benefits for the public at large:

- Develop **sustainable sources of revenue for the government**. The city-token economic model should avoid redirecting existing tax revenue; instead, it should create new sources of revenue.
- Create **economic alignment between residents and the city**. The coin itself should become more valuable as the city becomes more attractive, but the economics of a city coin actively encourages residents to hold the coin, more so than faraway investors.
- Promote **saving and wealth building**. By default, as homeowners make mortgage payments, they build up their net worth. City tokens could do this, too, making it attractive to accumulate coins over time and even gamifying the experience.
- Encourage **more pro-social activity**, such as rewarding positive actions that help the city or encouraging more sustainable use of resources.
- Be **egalitarian**. This system would not unduly favor wealthy people over poor people (as badly designed economic mechanisms often accidentally do). A token's divisibility, which mitigates the sharp binary divide between haves and have-nots, helps—but we can go further by allocating a large portion of new issuance to residents as part of a universal basic income.
- Run on a **trustless system**. New smart-contract technology would cryptographically enforce the new rules under the jurisdiction. The economic system would be tamper-proof, highly reliable, and run seamlessly.

5 APPLICATIONS TO CHARTER CITIES AND CONCLUSION

Charter cities focused on governance experimentation represent a clear opportunity to implement Web3-enabled Harbergeorgism.

The structuring of property rights to optimize the productive usage of assets and development of land is important for any economy, including brand-new ones. Avoiding the various problems associated with the traditional structuring of property rights and of tax policies discussed above—such as monopolistic hold-up, speculation, and disincentives for investment—is crucial when building up a new economy with no legacy industry or investment that could provide some

residual level of economic performance.

Similarly, the nascent nature of a charter city allows for more rapid implementation of new technologies. For instance, all land parcels within a charter city could be registered on a blockchain ledger from the outset to immediately enable the tokenized PVAT system described above. Other Web3-enabled policies a charter city could implement to help jumpstart its economy include selling tokenized parcels of land to city-coin holders directly or allowing residents to purchase city debt in exchange for discounted grants of land parcels. A charter city with excess revenue from a successful Harbergeorgist program could distribute a charter city citizens' dividend, bringing George's redistributive vision into the twenty-first century.

The most promising near-term application for Harbergeorgism concerns assets currently owned by a host government, which have been or may soon be sold off or leased to private parties. Rather than sell these assets permanently or lease them for concurrent, fixed-length terms, governments could "partially" sell the asset based on a dynamic Harberger tax-based licensing-fee structure. The government could initially auction off the asset, with the highest bidder then self-assessing a price (and therefore also a license fee), kickstarting the traditional Harberger process.

This paper has articulated a Harbergeorgist vision for restructuring property rights, land usage, and public finance. This ambitious program to greatly improve economic efficiency and land use is well-suited to implementation in a special jurisdiction like a charter city, which is intended to improve economic outcomes and serve as a platform for experimentation and reform. It would be a welcome addition to the policies of various charter cities and special jurisdictions.

ENDNOTES

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